Medication Adherence Enhancing Interventions: Criteria Used for Value Assessment

An ISPOR Forum By Medication Adherence and Persistence Special Interest Group

May 17, 2021
Introduction to Medication Adherence and Persistence 
Special Interest Group
Speakers

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Professor of Health Services Research, Mayo Clinic College of Medicine and Science; Endowed Scientific Director, Health Services and Outcomes Research Program at the Kern Center for the Science of Health Care Delivery, Mayo Clinic, Rochester, Minnesota, United States
Medication Adherence and Persistence SIG

- **Mission**: To stimulate research and evaluation on issues related to medication adherence, treatment persistence, and implications for health outcomes.

- **214 MEMBERS**
- **LONGEST ACTIVE** ISPOR Special Interest Group with over 12 publications.
- 2 of the articles are in the **top 10 cited articles** in *Value in Health.*
Medication Adherence and Persistence SIG

• Some work products
  – Methods for Measuring Multiple Medication Adherence: A Systematic Review Report
  – Medication Compliance and Persistence: Terminology and Definitions
  – Methods for Integrating Medication Compliance and Persistence in Pharmacoeconomic Evaluations
  – For more studies and information see ISPOR Medication Adherence and Persistence Special Interest Group webpage https://www.ispor.org/member-groups/special-interest-groups/medication-adherence-and-persistence
Structure of Special Interest Group (SIG)

Special Interest Group Leadership
- Chair-elect
- Chair
- Past chair
- The tenure for each of positions is a 1-year term, resulting in a 3-year commitment

Key Project Working Group
Member Engagement Working Group
# Medication Adherence and Persistence Special Interest Group-Leadership

## Special Interest Group Leadership

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Institution</th>
<th>Country</th>
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</thead>
<tbody>
<tr>
<td>Priti Pednekar, MS, BS, PhD</td>
<td>Research Scientist, PRECISIONheor</td>
<td>United States</td>
<td></td>
</tr>
<tr>
<td>Elizabeth Manias, RPh, RN, PhD</td>
<td>Research Professor, Deakin University</td>
<td>Australia</td>
<td></td>
</tr>
<tr>
<td>Andrew Peterson, PharmD, BS, PhD</td>
<td>Professor of Clinical Pharmacy and Professor of Health Policy</td>
<td>United States</td>
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## Criteria for the Value Assessment for Medication Adherence-Enhancing Interventions

<table>
<thead>
<tr>
<th>Name</th>
<th>Title and Institution</th>
<th>Country</th>
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<tbody>
<tr>
<td>Tamas Agh, MD. MSc., Ph.D.</td>
<td>Principal Researcher, Syreon Research Institute</td>
<td>Hungary</td>
</tr>
<tr>
<td>Mickaël Hiligsmann, PhD</td>
<td>Associate Professor, Maastricht University</td>
<td>The Netherlands</td>
</tr>
<tr>
<td>Bijan Borah, PhD,</td>
<td>Professor and Endowed Scientific Director, Kern Center for the Science of Health Care Delivery, Mayo Clinic</td>
<td>United States</td>
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• Antitrust laws prohibit competitors from engaging in actions that could result in an unreasonable restraint of trade.

• ISPOR members (and others attending ISPOR meetings and/or events) must avoid discussing certain topics when they are together including, prices, fees, rates, profit margins, or other terms or conditions of sale.

• Members (and others attending ISPOR meetings and/or events) have an obligation to terminate any discussion, seek legal counsel’s advice, or, if necessary, terminate any meeting if the discussion might be construed to raise antitrust risks.

• The Antitrust policy is available on the ISPOR website.
## Agenda

<table>
<thead>
<tr>
<th>Item #</th>
<th>Time</th>
<th>Topic</th>
<th>Presenter</th>
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<tbody>
<tr>
<td>1</td>
<td>05 mins</td>
<td>Introduction</td>
<td>Dr. Priti Pednekar</td>
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<td>2</td>
<td>10 mins</td>
<td>Rationale, objectives and structure of key research project</td>
<td>Dr. Priti Pednekar</td>
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<td>3</td>
<td>10 mins</td>
<td>Current Key Research Project-Methodological approach</td>
<td>Dr. Elizabeth Manias</td>
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<tr>
<td>4</td>
<td>10 mins</td>
<td>Current Key Research-Interim results</td>
<td>Dr. Bijan Borah</td>
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<tr>
<td>5</td>
<td>10 mins</td>
<td>Next steps</td>
<td>Dr. Bijan Borah</td>
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<tr>
<td>6</td>
<td>15 mins</td>
<td>QnA</td>
<td>All</td>
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</table>
Rationale, Objectives and Structure of Key Research Project
Non-adherence to Medications is Prevalent Across All Medical Conditions

Source: National Association of Chain Drug Stores, Pharmacies: improving health, reducing costs, July 2010. Based on IMS Health Data
Medication Non-adherence is a Costly Problem

- **125,000** premature deaths in the U.S. each year due to poor medication adherence
- **25%** of hospitalizations each year in the U.S. are attributed to medication non-adherence
- **$300 billion** avoidable costs to the U.S. health care system **annually**
- **$637 billion** in annual cost to the pharma industry **globally**

Medication Adherence Enhancing Interventions (MAEIs) Found to be Effective in Improving Medication Adherence

- Behavioral Interventions
- Biosensors
- Educational Interventions
- Patient Adherence Tools
- Tailored Interventions
How to Evaluate MAEIs?

• Several medication adherence enhancing interventions (MAEIs) have been developed in recent years; nevertheless
  – limited evidence on how to evaluate these interventions in real-world settings
  – Recent review indicated that “the vast majority of primary studies … were of low or very low quality according to the accepted methodology for evidence grading” (Anderson, 2020)

Currently Available Value Frameworks are Limited to Pharmaceutical Interventions


Conceptual Structure of the ICER Value Assessment Framework

ISPOR’s Value Flower


Not transferable to MAEIs
Polling Question 1
Polling Question 1

• **HOW IMPORTANT** do you think that there is a need to establish specific criteria to assess medication adherence enhancing interventions (MAEIs)?

A. Not at all important  
B. Low important  
C. Neutral  
D. Important  
E. Extremely important
Objective and Project Structure

**Aim:** To systematically identify relevant criteria for the value assessment of medication adherence enhancing interventions (MAEIs)

**Key Research Project Phases:**

1. **Systematic Literature Review**
   - Chair of the project: Dr. Tamas Agh

2. **Focus Group Discussion with Experts**
   - Chair of the project: Dr. Mickaël Hiligsmann

3. **Delphi Panel Study**
   - Chair of the project: Dr. Bijan Borah
Polling Question 2
Polling Question 2

• Which criterion do you think is MOST COMMONLY USED in the literature to assess medication adherence enhancing interventions (MAEIs)?

A. Change in medication adherence rates, persistence or initiation rate
B. Cost-effectiveness of MAEI
C. Clinical outcomes such as change in cholesterol level, mortality rate, stroke rate, etc.
D. Patient satisfaction
E. Quality of life
Systematic Literature Review - Methodology
Systematic Literature Review – Research Question

<table>
<thead>
<tr>
<th>P (patient/population)</th>
<th>Patients receiving pharmacotherapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>I (intervention/indicator)</td>
<td>MAEIs</td>
</tr>
<tr>
<td>C (comparison)</td>
<td>NA</td>
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<tr>
<td>O (outcome of interest)</td>
<td>Outcomes / domains and criteria for the value assessment of MAEIs</td>
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**S (study design)**

A) Clinical trials: randomized/non-randomized, controlled/single-arm trials
B) Prospective observational studies
C) Economic evaluations (e.g., cost-effectiveness analyses)
D) Value frameworks on pharmaceuticals and health care intervention programs

- “Which outcomes are considered for the assessment of MAEIs in clinical trials, prospective observational studies, and economic evaluations?”
- “Which domains or criteria of published value frameworks on pharmaceuticals and health care intervention programs can be relevant for the value assessment of MAEIs?”
Systematic literature review – Search Strategy

- Databases searched
  - MEDLINE (via OVID)
  - PsycINFO (via OVID)
  - Scopus
  - CINAHL (via EBSCO)
  - Academic Search Complete (via EBSCO)

- Search terms used
  - MeSH and non-MeSH terms
  - Boolean operators
  - Search terms related to
    - Medication adherence intervention AND clinical trial, observational study, economic evaluation
    - Value framework AND pharmaceutical, health care intervention
Systematic Literature Review – Article Selection Process

1) Initial electronic search
2) Addition of manual searched publications
3) Duplicates’ removal – EndNote and Rayyan
4) First Pass Screening - Rayyan
   ▪ Based on **title and abstract**
   ▪ Include **double independent reviews** by multiple pairs of SIG members
5) Second Pass Criteria and # of articles
   ▪ Based on **full texts**
   ▪ Include **double independent reviews** by multiple pairs of SIG members
6) Resolution of discrepancies
   ▪ Consensus between each pair of reviewers
   ▪ Group discussions
Search Strategy - Eligibility Criteria

**Inclusion criteria**
- Clinical trials: randomized/non-randomized, controlled/single-arm trials
- Prospective observational studies
- Economic evaluations (e.g., cost-effectiveness analyses)
- Value frameworks on pharmaceuticals and health care intervention programs

**Exclusion criteria**
- No abstract,
- Non-English article,
- Article not reporting original data (e.g., letter, editorial, comment, review),
- Not evaluating a MAEIs (articles evaluating interventions for enhancing adherence to diet, lifestyle change, guidelines will be excluded), or not presenting the domains and/or criteria of a value framework for pharmaceuticals or intervention programs in health care,
- Not reporting relevant data, and
- Relevant former systematic literature reviews and meta-analyses (these articles will be collected separately, and the references of the papers will be reviewed)
Search Strategy- Data Extraction

• Several data elements will be extracted
  – Study design
  – Characteristics of participants of the study
  – Disease studied
  – Study period and duration of the study
  – Type of MAEIs
  – Criteria used to evaluate MAEIs

Our SLR is registered on PROSPERO HERE (registration number: CRD42021242934)
Polling Question 3
Polling Question 3

• What do you think is the **MOST IMPORTANT** criterion of assessing medication adherence enhancing interventions (MAEIs)?

A. Change in medication adherence rates, persistence or initiation rate
B. Cost-effectiveness of MAEI
C. Clinical outcomes such as change in cholesterol level, mortality rate, stroke rate, etc.
D. Patient satisfaction
E. Quality of life
Polling Question 4
Polling Question 4

What do you think is the LEAST IMPORTANT criterion of assessing medication adherence enhancing interventions (MAEIs)?

A. Change in medication adherence rates, persistence or initiation rate
B. Cost-effectiveness of MAEI
C. Clinical outcomes such as change in cholesterol level, mortality rate, stroke rate, etc.
D. Patient satisfaction
E. Quality of life
Systematic Literature Review-Interim Results
Interim Results - Study Selection Flow Diagram

Records identified through OVID Medline (n = 8,511)
Records identified through PsycInfo (n = 968)
Records identified through Scopus (n = 7,776)
Records identified through EBSCO CINAHL (n = 1,925)
Records identified through EBSCO Academic Search Complete (n = 3,204)

Duplicates (identified by EndNote & Rayyan) (n = 7,699)
Records for title and abstract screening (n = 14,685)

Interim results
Included: n=1,213; Excluded: n=11,980; Conflicts: n=1,492

Studies included in SLR
Full text screening (not yet started)
Interim Results - Existing Evidence

Evidence gap

• No published value framework for medication adherence enhancing interventions (MAEIs) !!!

Prospective studies

• Most of the included studies were prospective studies
  ▪ Clinical trials of MAEIs
  ▪ Prospective cohort studies of MAEIs

Cost-effectiveness analyzes (CEAs)

• Limited number of CEAs of MAEIs were identified

Systematic literature reviews (SLRs)

• There are a large number of SLRs reporting data on MAEIs
  ▪ References of these SLRs will be reviewed for further potential studies
## Interim Results – Criteria Identified

<table>
<thead>
<tr>
<th></th>
<th>Medication adherence measurement (eg: PDC, MPR, persistence rate)</th>
<th>Clinical outcomes (eg: cholesterol level, blood pressure)</th>
<th>Clinical events (eg: myocardial infarction, stroke, death)</th>
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<td>7</td>
<td>Cost of intervention</td>
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- **Patient satisfaction**
- **Quality of life of patients**
- **Cost-effectiveness of intervention**
- **Cost of intervention**
- **Healthcare utilization**
- **Healthcare costs**
Polling Question 5
Polling Question 5

• **HOW IMPORTANT** do you think that the assessment of medication adherence enhancing interventions (MAEIs) have an impact on health outcomes?

A. Not at all important
B. Low important
C. Neutral
D. Important
E. Extremely important
Polling Question 6
Polling Question 6

- Which criterion do you now think is the **MOST IMPORTANT** criterion of assessing medication adherence enhancing interventions (MAEIs)?

A. Change in medication adherence rates, persistence or initiation rate
B. Cost-effectiveness of MAEI
C. Clinical outcomes such as change in cholesterol level, mortality rate, stroke rate, etc.
D. Patient satisfaction
E. Quality of life
Next Steps
Next Steps in SLR

- Records identified through OVID Medline (n = 8,511)
- Records identified through PsycInfo (n = 968)
- Records identified through Scopus (n = 7,776)
- Records identified through EBSCO CINAHL (n = 1,925)
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Interim results
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Full text screening

Studies included in SLR
Project Next Phase: Online Focus Group

- **Aim**: To gain more insights into important criteria for value assessment of MAEIs.
- **When?**: Oct-Nov. 2021 (1 hour)
- **How?**: Online focus group via Zoom
- **We are searching for participants!**
  - Criteria: We will elicit the perspectives of all stakeholders engaged in improving medication adherence. Thus, online focus group participants will include:
    - Patient representatives
    - Working professionals from the following fields/industries: Payers, healthcare providers, industry, academia
6

QnA
Acknowledgement

• Thank you ALL!!
• Theresa Tesoro
• ISPOR staff
• ISPOR MAP SIG members
• Reviewers of ‘title and abstract screening’ step of SLR
  ▪ Charlotte Beaudart
  ▪ Ivett Jakab
  ▪ Kafi Agboola
  ▪ Shubham Atal
  ▪ Melania Brzozowska
  ▪ Christopher Daly
  ▪ Maria Dimitrova
  ▪ S. Hossein Hajimiri
  ▪ David Hutchins
  ▪ Manthan D. Janodia
  ▪ Shweta Kamat
  ▪ Kelly Lenahan
  ▪ Elkanah Linder
  ▪ Gediwon Milky
  ▪ Nneka Onwudiwe
  ▪ Chintal H. Shah
  ▪ Manvi Sharma
  ▪ Grace Singson
  ▪ Adina Turcu-Stiolica
  ▪ Elizabeth Jisha Unni
  ▪ Yingnan Zhao

• For more studies and information see ISPOR Medication Adherence and Persistence Special Interest Group webpage https://www.ispor.org/member-groups/special-interest-groups/medication-adherence-and-persistence
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1. Visit ISPOR home page
   www.ispor.org
2. Select “Member Groups”
3. Select “Special Interest Groups”
4. Click button to “Join A Special Interest Group”

For more information about the Medication Adherence and Persistence Special Interest Group email MedAdherenceSiG@ispor.org

You must be an ISPOR member to join a Special Interest Group